

Effects of R_p , C_{dl} , and R_{el} on the shape of the EIS spectra

<https://spectrum-parameters-62bbe96a58be.herokuapp.com/>

This app is designed for visualizing the impedance behavior of an equivalent circuit, which consists of a solution resistance (R_{el}) in series with a parallel combination of double-layer capacitance (C_{dl}) and charge transfer resistance (R_{pol}). Users can adjust the values of these components using logarithmic sliders and see the effects on the EIS plots.

The app presents three key plots:

1. **Bode Plot - Modulus:** This plot shows the log of the impedance modulus as a function of the log frequency. It gives insight into how the impedance magnitude changes across a wide range of frequencies.
2. **Bode Plot - Phase:** This plot visualizes the negative phase of the impedance in degrees versus the log frequency, helping users understand the phase shift introduced by the circuit components.
3. **Nyquist Plot:** The real versus negative imaginary parts of the impedance are plotted, providing a visual representation of the circuit's complex impedance.

The app also allows users to toggle autoscaling for the Bode plots. For the Nyquist plot, autoscaling is applied automatically to maintain the correct aspect ratio. The selected component values are displayed below the plots for reference.

This app enables users to explore how changes in component values affect the impedance response of the circuit over a wide frequency range.

Effects of R_p , C_{dl} , and R_{el} on the shape of the EIS spectra (multi-curve)

<https://spectrum-parameters-multicurve-a4ff04215c5c.herokuapp.com/>

This app has the same features as the app above, with the difference that when the values of the parameter are changed by the user, the new spectra are overlapped to the previously calculated spectra, such as to visualize effectively the impact of changing a particular parameter.